557. SCIENCE STANDARDS - GRADE 2, SECTIONS 558 THROUGH 568.

The samples associated with the content standards are meant to illustrate meaning and to represent possible areas of applications. They are not intended to be an exhaustive list, but are samples of applications that would demonstrate learning.

558. UNIFYING CONCEPTS OF SCIENCE.

Standards - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand concepts and processes of evidence, models, and explanation.	a. Explore the concepts of observation and data collection.	i. Observe the development of a caterpillar, keep journal, make predictions, and record findings.
	b. Explore and use various models.	i. Water cycle. ii. Food pyramid. iii. Habitats. iv. Connecting blocks.
02. Understand constancy, change, and measurement.	a. Understand that changes occur and can be measured.	
	b. Measure in standard and non-standard systems.	i. Student's growth log. ii. Keep plant journal. iii. Pilgrim House (make a life-size model using masking tape to outline house dimensions and interior furnishings).
03. Understand the theory that evolution is a process that relates to the gradual changes in the universe and of equilibrium as a physical state.	a. Understand the concepts of past, present, and future.	i. Timeline (family tree, personal history). ii. "What if" discussions: technology/inventions; what if electricity had not been discovered? iii. Plant experiments (monitor changes under different conditions [dark, under watered, over watered, no soil]). iv. Compare the changes in the food preservation process throughout history.
04. Understand concepts of form and function.	a. Identify shape and use of objects.	i. Research birds to learn why they have different beaks or feet. ii. Write a story about why animals have certain characteristics (webbed feet, flat tails, claws, fangs).

559. CONCEPTS OF SCIENTIFIC INQUIRY.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand scientific inquiry and develop critical thinking skills.	a. Brainstorm questions that can be investigated.	i. Scientific experiments that stimulate students to ask questions such as: • Grow mold under different conditions • Magnetism with various materials • Carnation with split stem in colored water
	b. Make observations.	i. Germs in a covered petri dish. ii. Alka-Seltzer rockets.

	c. Use various tools to gather information.	i. Given an assortment of tools, students will choose the appropriate tool(s) to measure and weigh an object and record data.
	d. Explore information and evidence.	i. Analyze data by: • Graphing • Class discussion
	e. Use observations to make guesses.	i. Present data. ii. Compare results.
	f. Communicate observations.	i. Explain why the tool chosen was the most appropriate one.

560. CONCEPTS OF PHYSICAL SCIENCE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the structure and functions of matter and molecules and their interactions.	a. Know that objects have combinations of properties.	i. Identify objects and two or more of their properties (color, harness, size, shape, texture, smell).
	b. Recognize and classify matter as a solid, liquid, or gas.	i. In small cooperative teams have students identify various examples of each state of matter.
	c. Recognize that matter can change states (solid, liquid, gas).	i. Melting/hardening chocolate. ii. Raw versus boiled egg.
02. Understand concepts of motion and forces.	a. Explore the position and motion of objects.	
	b. Explore different kinds of energy.	

561. CELLULAR AND MOLECULAR CONCEPTS.

Cellular and Molecular Concepts standards do not apply at this grade level.

562. INTERDEPENDENCE OF ORGANISMS AND BIOLOGICAL CHANGE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the theory of biological evolution.	a. Observe and explore the life cycles of plants and animals and their basic needs.	i. Plant a seed and monitor its growth. ii. Hatch an egg. iii. Observe a caterpillar as it forms a cocoon. iv. Observe tadpoles in an aquarium over time. v. Classroom animal visits.

	b. Recognize that animals live in different habitats for which they are suited.	i. Take a field trip to a nature conservancy or a zoo. ii. Watch videos and discuss different habitats. iii. Create a habitat in your classroom by adding animals that would live there. Observe different habitats (ant farm, aquarium, beehive).

563. MATTER, ENERGY, AND ORGANIZATION IN LIVING SYSTEMS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the relationship between matter, energy, and organization to trace matter as it cycles and energy as it flows through living systems and between living systems and the environment.	a. Understand that living things need food to survive.	i. Classroom pet. ii. Food pyramid.

564. EARTH AND SPACE SYSTEMS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand scientific theories of origin and subsequent changes in the universe and earth systems.	a. Identify the four seasons and their characteristics.	i. Study the cycle of a tree through the four seasons. ii. Draw a picture of a tree depicting its appearance through all four seasons. iii. As a yearlong bulletin board display, decorate a deciduous tree according to the season.
	b. Understand the characteristics of different weather conditions.	
02. Understand geo-chemical cycles and energy in the earth system.	a. Explore evaporation and precipitation.	i. Using a wet paper towel, wipe a chalkboard or desk and determine where the water goes. ii. Hang wet paper towel to dry. Discuss observations. iii. Go outside in the rain and discuss where rain comes from.

565. TECHNOLOGY.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the relationship between science and technology and develop the abilities of technological design and application.	a. Distinguish between natural objects and objects made by humans.	i. Tree versus pencil.

	b. Recognize that people have invented tools for everyday life and for scientific investigations.	i. Do an activity with and without a tool and determine which task was easier. ii. Invent a tool to complete a task.
	c. Create a tool to perform a specific function.	
	d. Use available and appropriate technology.	i. Use the Internet as a research source. ii. Use a microscope and magnifying glass to see more detail than the human eye can provide.

566. PERSONAL AND SOCIAL PERSPECTIVES.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand common environmental quality issues, both natural and human induced.	a. Identify the characteristics of the local environment.	i. Make a map of the school, town, etc. ii. Make a model of the town out of milk cartons and cereal boxes.
02. Understand the importance of natural resources and the need to manage and conserve them.	a. Understand the concept of recycling.	i. Start a classroom/school-recycling program. ii. Field trip to a recycling center. iii. Make your own recycled paper.
	b. Understand the conservation of natural resources.	i. Guest speakers from various natural resource and conservation professions. ii. Measure classroom and home resource use (how much water to wash hands, brush teeth, drinking).

567. HISTORY OF SCIENCE.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand the significance of major scientific milestones.	a. Understand major contributions of various scientists and researchers.	

568. INTERDISCIPLINARY CONCEPTS.

Standard - The student will:	Content Knowledge and Skills:	Samples of Applications:
01. Understand that interpersonal relationships are important in scientific endeavors.	a. Learn appropriate cooperation and interaction skills.	i. Group activities where each student is given a particular task.
02. Understand technical communication.	a. Understand and follow instructions.	i. "Telephone game" variation - students in groups. One member of each group receives an instruction to relate to the rest of the group. When the group is finished with that instruction, the next member receives another instruction.